

CLAIMS

1. A turbine shroud comprising:
an arcuate substrate wall having front and back surface, forward and aft hooks extending from said back surface, and a plurality of aperture inlets extending therethrough;
a thermal barrier coating bonded to said wall front surface; and
a network of flow channels extending parallel between said wall and coating for carrying an air coolant therethrough.
2. A shroud according to claim 1 further comprising a plurality of aperture outlets extending through said coating in flow communication with said channels for discharging said coolant.
3. A shroud according to claim 2 further comprising a bond coat laminated between said substrate wall and coating, and atop said flow channels.
4. A shroud according to claim 3 wherein said network comprises inlet and outlet headers and a row of cross channels extending therebetween.
5. A shroud according to claim 4 wherein said cross channels extend transversely between said inlet and outlet headers.
6. A shroud according to claim 5 wherein said cross channels are straight from said inlet header to said outlet header.
7. A shroud according to claim 5 wherein said cross channels are arranged in multiple serpentine legs between said inlet and outlet headers.
8. A shroud according to claim 4 wherein said cross channels extend parallel with said inlet and outlet headers in multiple serpentine legs therebetween.

-13-

9. A shroud according to claim 4 wherein said channels are disposed in said substrate below said bond coat.
10. A shroud according to claim 4 wherein said channels are disposed in said bond coat below said coating and atop said substrate.
11. A gas turbine engine wall comprising:
 - a metal substrate having front and back surfaces, and an aperture inlet extending therethrough;
 - a thermal barrier coating bonded atop said front surface; and
 - a network of flow channels laminated between said substrate and coating for carrying an air coolant therebetween.
12. A wall according to claim 11 further comprising a plurality of aperture outlets extending through said coating in flow communication with said channels for discharging said coolant.
13. A wall according to claim 12 wherein said channels extend parallel between said substrate and coating, and said inlet and outlets extend transversely therethrough.
14. A wall according to claim 13 further comprising a bond coat laminated between said substrate and coating, and atop said flow channels.
15. A wall according to claim 14 wherein said channels are disposed in said substrate below said bond coat.
16. A wall according to claim 14 wherein said channels are disposed in said bond coat below said coating and atop said substrate.

-14-

17. A wall according to claim 14 wherein said network comprises inlet and outlet headers and a row of cross channels extending therebetween.

18. A wall according to claim 17 wherein said cross channels extend transversely between said inlet and outlet headers.

19. A wall according to claim 18 wherein said cross channels are straight from said inlet header to said outlet header.

20. A wall according to claim 18 wherein said cross channels are arranged in multiple serpentine legs between said inlet and outlet headers.

21. A wall according to claim 17 wherein said cross channels extend parallel with said inlet and outlet headers.

22. A wall according to claim 21 wherein said cross channels are arranged in multiple serpentine legs between said inlet and outlet headers.

23. A wall according to claim 17 comprising an arcuate turbine shroud having forward and aft hooks extending outwardly from said substrate back surface for supporting said shroud above a row of rotor blades in a gas turbine engine.

24. A turbine shroud according to claim 23 wherein said inlet header is disposed adjacent said aft hook, and said outlet header disposed adjacent said forward hook.

25. A turbine shroud all according to claim 23 wherein said inlet header is disposed adjacent said forward hook, and said outlet header is disposed adjacent said aft hook.

26. A method of making said wall according to claim 17 comprising:
forming said channels in said substrate front surface;

-15-

masking said channels;
applying said bond coat over said substrate front surface and masked channels;
applying said thermal barrier coating over said bond coat;
removing said mask from said channels; and
drilling said outlets through said coating and bond coat in flow communication with said outlet header.

27. A method of making said wall according to claim 17 comprising:
masking said substrate front surface at a plurality of locations corresponding with said flow channels;
applying said bond coat over said substrate front surface and said masked locations;
applying said thermal barrier coating over said bond coat;
removing said mask from said bond coat; and
drilling said outlets through said coating and bond coat in flow communication with said outlet header.